# JOURNAL OF COLLOID AND INTERFACE SCIENCE


## EDITORS-IN-CHIEF

Milton Kerker
*Clarkson College of Technology*
*Potsdam, New York*

A. C. Zettlemoyer
*Lehigh University*
*Bethlehem, Pa.*

## ADVISORY BOARD

C. H. Amberg
*Ottawa, Canada*

B. Bijsterbosch
*Wageningen, The Netherlands*

D. A. Cadenhead
*Buffalo, New York*

Eric J. Clayfield
*Cheshire, England*

C. N. Davies
*Essex, England*

I. Gallily
*Jerusalem, Israel*

F. C. Goodrich
*Potsdam, New York*

I. M. Krieger
*Cleveland, Ohio*

D. Napper
*Sydney, Australia*

A. W. Neumann
*Toronto, Canada*

J. F. Padday
*Wealdstone, England*

H. M. Princen
*Edgewater, New Jersey*

Howard Reiss
*Los Angeles, Calif.*

Kozo Shinoda
*Yokohama, Japan*

K. S. W. Sing
*Uxbridge, England*

Lloyd A. Spielman
*Cambridge, Mass.*

William H. Wade
*Austin, Texas*

P. L. Walker, Jr.
*University Park, Pa.*

Victor K. La Mer, Founding Editor
(1895–1966)



Volume 50
1975

ACADEMIC PRESS
*New York and London*
*A Subsidiary of Harcourt Brace Jovanovich, Publishers*

Copyright © 1975 by Academic Press, Inc.

All rights reserved

No part of this publication may be reproduced or transmitted in any form, or by any means, electronic or mechanical, including photocopy, recording, or any information storage and retrieval system, without permission in writing from the copyright owner.

*Made in the United States of America*

# Contents of Volume 50

Number 1, January 1975


Charles J. Cante, Joseph E. McDermott, Fouad Z. Saleeb, and Henri L. Rosano. Surface pH from Electrokinetic Potentials and Titration of Laurate Salts ..... 1

Katsuyuki Takahashi. Empirical Molecular Orbital Calculation of a Few Surfactants and Its Implication in Surface Chemistry ..... 12

C. H. Giles, V. G. Agnihotri, and N. McIver. Measurement of Aggregation Number of Monionic Dyes with the Langmuir Film Balance ..... 24

W. H. Marlow and J. R. Brock. Unipolar Charging of Small Aerosol Particles. 32

Horng-Min Lin, Thomas R. Marshall, and Frank T. Gucker. Calculation of the Total Scattering Energy over a Spherical Surface by Integration of the Gucker Series ..... 39

Zahid Hussain, Musarrat Fatima, and Jamil Ahmad. The Rate of Spreading of Monolayers on Liquids ..... 44

E. Riolo, X. B. Reed, Jr., and S. Hartland. The Effect of Hydrodynamic Coupling on the Steady Drainage of a Thin Film Between a Solid Sphere Approaching a Fuid–Liquid Interface ..... 49

Ryong-Joon Roe. Adsorption of Solid Solutes from Solution: Application of the Multilayer Theory of Adsorption ..... 64

Ryong-Joon Roe. Wetting of Fine Wires and Fibers by a Liquid Film ..... 70

Noboru Moriyama. Stability of Aqueous Ferric Oxide Suspension ..... 80

Barton Dahneke. Kinetic Theory of the Escape of Particles from Surfaces .... 89

Dwarika Nath Misra. Adsorption of 1,1-Diphenyl-2-picrylhydrazyl on Rutile: The Role of Moisture and Orientation ..... 108

Pranab Bagchi. On the Assumption of a Step Function for the Adsorption-Layer Thickness in the Nonionic Stabilization of Dispersions ..... 115

A. A. Kovitz. Static Fluid Interfaces External to a Right Circular Cylinder-Experiment and Theory ..... 125

Lee Swartzen-Allen and Egon Matijević. Colloid and Surface Properties of Clay Suspensions. II. Electrophoresis and Cation Adsorption of Montmorillonite ..... 143

Hiroshi Utsugi, Hideo Horikoshi, and Toshiharu Matsuzawa. Mechanism of Esterification of Alcohols with Surface Silanols and Hydrolysis of Surface Esters on Silica Gels ..... 154

Albert B. Levit and Robert L. Rowell. Time Dependence of the Size Distribution, Number Concentration and Surface Area in La Mer Sulfur Sols ..... 162




Copyright © 1975 by Academic Press, Inc.
All rights of reproduction in any form reserved.

N. Lakshminarayanaiah. Flows of $^{22}Na$ in Layer-Type Composite Membranes. 170

Stephen R. Turner, Mitchell Litt, and William S. Lynn. Permeation of Water Vapor Through Lipid Monolayers. 181

Note

Barton Dahneke. Resuspension of Particles. 194

Number 2, February 1975

L. D. Ahuja and A. S. Brar. Physico-Chemical Characteristics of Cobalt Oxides and their Catalytic Activities. 197

Bruno Kindl and Bohdan W. Wojciechowski. On the Maximum Energy of Adsorption. 208

Martin Blank, Beatrice B. Lee, and John S. Britten. Adsorption Kinetics of Ovalbumin Monolayers. 215

Katsuhiko Deguchi and Kenjiro Meguro. The Effects of Inorganic Salts and Urea on the Micellar Structure of Nonionic Surfactant. 223

Richard L. Hoffman. A Study of the Advancing Interface I. Interface Shape in Liquid–Gas Systems. 228

John Ralston and J. A. Kitchener. The Surface Chemistry of Amosite Asbestos, and Amphibole Silicate. 242

Robert Francis Allen and Philip Roy Benson. Rolling Drops on an Inclined Plane. 250

Yoshikiyo Moroi, Nagamune Nishikido, Hiromoto Uehara, and Ryohei Matuura. An Interrelationship Between Heat of Micelle Formation and Critical Micelle Concentration. 254

I. Dékány, F. Szántó, L. G. Nagy, and G. Fóti. Adsorption of Liquid Mixtures on Bentonite and Organophilic Bentonite. 265

D. G. Legrand and G. L. Gaines, Jr. Immiscibility and Interfacial Tension Between Polymer Liquids: Dependence on Molecular Weight. 272

J. B. Harris and J. F. T. Pittman. Equivalent Ellipsoidal Axis Ratios of Slender Rod-Like Particles. 280

Helge Jeziorowski, Helmut Knözinger, and Wolfgang Meye. Surface Area and Porosity of Thorium Oxides. 283

Josip J. Petres and Gjuro Deželić. Light Scattering by Large Ellipsoidal Particles. I. Rayleigh–Debye Approach. 296

Leonard J. Warren. Shear-Flocculation of Ultrafine Scheelite in Sodium Oleate Solutions. 307

S. Raghavan and D. W. Fuerstenau. The Adsorption of Aqueous Octylhydroxamate on Ferric Oxide. 319

P. Gajardo and J. Cortés. Optimization of Parameters in Semiempirical Adsorption Isotherms. 331

Jacob Yonath. The Effect of Alcohols on Micelle Formation and on Detergent–Protein Association. 338

Yoshikiyo Moroi, Nagamune Nishikido, and Ryohei Matuura. The Critical Micelle Concentration of Multicomponent Mixtures of Metal Alkyl Sulfates in Aqueous Solutions. II ..... 344

B. R. Jennings and V. J. Morris. Infrared Electrooptic Scattering from Bacterial Suspensions ..... 352

Thomas J. Jarvis, Marc D. Donohue, and Joseph L. Katz. Bubble Nucleation Mechanisms of Liquid Droplets Superheated in Other Liquids ..... 359

J. G. Eberhart, W. Kremsner, and M. Blander. Metastability Limits of Superheated Liquids: Bubble Nucleation Temperatures of Hydrocarbons and Their Mixtures ..... 369

V. J. Morris, P. J. Rudd, and B. R. Jennings. Electrically Induced Turbidity Changes; A Method for Characterizing Polydisperse Suspensions of Rod-Like Bacteria ..... 379

Thomas Baird, A. Graham Cairns-Smith, and Douglas S. Snell. Morphology and $CO_2$ Uptake in Tobesmorite Gel ..... 387

Note

Uichiro Narusawa and George S. Springer. Measurements of Evaporation Rates of Water ..... 392

Erratum ..... 396

Number 3, March 1975

W. D. E. Thomas and L. Potter. Solution/Air Interfaces I. An Oscillating Jet Relative Method for Determining Dynamic Surface Tensions ..... 397

Bernard Génot. Some Remarks on the Mathematical Nature of the BET Equation and Presentation of a New Method of Determination of $V_m$, with a Direct Demonstration of this Quantity (Point M) ..... 413

James D. Eagan and Robert B. Anderson. Kinetics and Equilibrium of Adsorption of 4A Zeolite ..... 419

A. G. Naylor, R. V. Murphy, N. R. Jones, and B. H. Kaye. Optical Information Procedures Applied to the Shape Analysis of Agglomerate Structures ..... 434

Rachel Levy and C. W. Francis. Interlayer Adsorption of Polyvinylpyrrolidone on Montmorillonite ..... 442

Branko Tomážič and George H. Nancollas. The Seeded Growth of Calcium Phosphates. Surface Characterization and the Effect of Seed Material ..... 451

Keith B. Lodge. On the Comparison of the Predictions of Lifshitz Theory with Experiment: Van der Waals Forces between Mica Plates ..... 462

M. E. Heyde, C. R. Peters, and J. E. Anderson. Factors Influencing Reverse Osmosis Rejection of Inorganic Solutes from Aqueous Solution ..... 467

E. James Davis and S. C. Liao. The Growth Kinetics and Polydisperisty of Condensational Aerosols ..... 488

L. Alzamora, S. Contreras, and J. Cortés. Surface Methylation of Aerosil and Its Influence on the Adsorption of Water ..... 503

E. Ruckenstein and J. C. Chi. Conditions for the Size Spectrum of Aerosols to be Self-Preserving ..... 508

J. H. Anderson, John Lombardi, and M. L. Hair. The Influence of Hydroxyl Groups on the Ultraviolet Spectra of Substituted Aromatic Molecules Adsorbed on Silica Surfaces ..... 519

Dileep K. Thakur and Kenneth Hickman. Surface Tension of Water at 100°C 525

Makio Iwahashi. Enzymatic Hydrolysis of Chloramphenicol Palmitate in Insoluble Monolayer at Air–Water Interface as Detected by Radiotracer Method ..... 532

Leonard A. Jonas, John C. Boardway, and Edward L. Meseke. Prediction of Adsorption Behavior of Activated Carbons ..... 538

J. C. Ravey. Computer Simulation of Morphological and Optical Properties of Aggregates of Spheres ..... 545

J. Th. C. Böhm and J. Lyklema. Memory Effects in Adsorbed Monolayers of the Polymethacrylate Type ..... 559

Egon Matijević, Ronald S. Sapieszko, and James B. Melville. Ferric Hydrous Oxide Sols I. Monodispersed Basic Iron (III) Sulfate Particles ..... 567

P. G. Wright. Chapman's Stochastic Relations for Diffusiophoresis as Exhibited by Particles Suspended in an Imperfect Gaseous Mixture of Nonuniform Composition ..... 582

C. H. Giles, S. D. Forrester, and B. J. Hojiwala. Adsorption and Catalysis at the Solid/Sulfur Dioxide Interface in the Atmosphere. An Examination of Statistical Data ..... 588

Notes

Ronald D. Neuman. Langmuir–Blodgett Monolayer Deposition on Collodion ..... 602

F. Th. Hesselink. On the Density Distribution of Segments of Adsorbed Macromolecules: The Effect of Dangling Tails ..... 606

W. J. Wnek, D. Gidaspow, and D. T. Wasan. A Note on the Streaming Potential Method for Measuring Surface Potentials ..... 609

Book Review ..... 615

Author Index ..... 616

Announcement ..... 618

Subject Index for Volume 50 will appear in the December issue as part of a cumulative index for the year 1975.